93-199

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Federal Communications Commission
Office of the Secretary

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	MM Docket
Request for Rulemaking setting	)	RM - 7610
standards for Aviation Receivers	)	

COMMENTS OF ROBERT C. BECKHAM

Pursuant to Section 1.405(a) of the Commission's Rules, Robert C. Beckham submits the following comments in support of the Petition for Rulemaking ("Petition") filed by John Furr & Associates, Inc. ("Petitioner").[1/]

1. Mr. Beckham is an applicant for a new FM radio station on Channel 229C2 at Martinez, Georgia (FCC File No. BPH-900125MZ).

2. In connection with his application, on January 23, 1990, Mr. Beckham filed a Notice of Proposed Construction or Alteration with the FAA's Southern Regional Office in Atlanta.

3. Mr. Beckham thereafter received a letter dated September 13, 1990, from Ronald T. Niklasson of the FAA (attached hereto as Exhibit A) stating that the FAA's preliminary review revealed a potential electromagnetic interference ("EMI") problem. An appended "Review of Airspace Study", dated August 22, 1990 (included in Exhibit A), stated that aircraft making an instrument landing system approach to Runway 17 at Augusta/Bush

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[1/] See Request for Rulemaking Setting Standards of Aviation Receivers, RM Docket No. 7610, filed December 21, 1990, FCC Public Notice Rep. No. 1836 (February 7, 1991). Pursuant to Sections 1.4 and 1.405(a)of the Commission's Rules, comments on the Petition for Rulemaking must be filed by Monday, March 11, 1991.

Field International Airport allegedly "will be subject to hazardous three signal/third order intermodulation interference of the type f1 + f2 - f3 resulting in navigation receiver overload." Mr. Niklasson advised that unless the EMI problem can be resolved, Mr. Beckham will receive a Determination of Hazard to Air Navigation. Mr. Niklasson sent a follow-up letter to Mr. Beckham on January 18, 1991 (attached hereto as Exhibit B), stating inter alia that, "If the proposed structure were reduced in height to not exceed 0 feet above ground level (450 feet above sea level), it would not exceed Part 77 obstruction standards."[2/]

4. Mr. Beckham understands that all other applicants for the Martinez, Georgia station proposing facilities that will serve the community have received similar letters from the FAA.

5. It therefore appears likely that the FAA's asserted EMI problem may prevent establishment of a needed new broadcast service at Martinez, Georgia.

6. Petitioner seeks to have the Commission eliminate what is called "third-order intermodulation" EMI to avionic transmissions by exercising its authority under the Communications Act of 1934 to impose inexpensive technical standards on avionic receiver systems. Petitioner argues, persuasively in Beckham's view, that this simple and inexpensive

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[2/] The follow-up letter stated that study of Mr. Beckham's proposal had been terminated subject to reactivation. Counsel is advised that the FAA reactivated the study at Mr. Beckham's request on February 28, 1991.

measure should be taken to avoid unnecessary preclusion of scarce spectrum needed for new and improved broadcast services, such as the service Beckham seeks to establish at Martinez, Georgia.

7. These comments in support of Petitioner's proposal will not address technical matters in any detail, but will be limited to providing legal support for Petitioner's assertion, at para. 9 of the Petition, that "the Communications Act of 1934 empowers the FCC to regulate the Radio Frequency Spectrum," and includes "the authority to regulate receivers as well as transmitters."

8. Petitioner is undoubtedly correct. If the right to regulate the use of the spectrum did not carry with it, by necessary inference, the right to regulate receivers where essential to avoid simple waste of scarce spectrum, it would nevertheless be clear that the Commission has explicit authority - indeed is directed by Congress - to regulate receivers and receiver systems used in avionics for the express purpose of immunizing them from third-order intermodulation interference from broadcast stations.

9. Section 303 of the Communications Act of 1934 provides that

> the Commission, from time to time, as public convenience, interest, or necessity requires, shall . . . . (r) Make such rules and regulations and prescribe such restrictions and conditions, not inconsistent with law, as may be necessary to carry out the provisions of this Act, or any international radio or wire communications treaty or convention, or regulations annexed thereto, including any treaty or convention insofar as it relates to the use of radio, to which the United States is a party. . . .

> insofar as it relates to the use of radio, to which the United States is a party. . . .
>
> 47 U.S.C. Section 303 (emphasis added).

Standards and Recommended Practices for Aeronautical Telecommunications, including standards for airborne receivers, are in fact prescribed in Annex 10 to the 1944 International Civil Aviation Organization ("ICAO") Convention on International Civil Aviation (61 Stat. 1180; TIAS 1591) to which the United States is a party. Signatory States, including the United States, are required by Annex 10 to conform to physical characteristics and performance specifications contained therein and necessary for the safety or regularity of international air navigation. Signatory States are also obliged "to endeavor to conform" to recommended practices set forth in Annex 10 which are deemed desirable in the interest of the safety, regularity or efficiency of international air navigation. See Foreword to Annex 10, Status of Annex Components, para. 1 (a), Vol. 1 at v. (21/11/85).[3/] Chapter 3 (Specifications for radio navigation aids) of Part 1 (Equipment and systems) of Annex 10, contains inter alia standards affecting airborne receiving equipment and systems. For example, 3.1.4 of Part 1 (apparently adopted by the ICAO Council, along with Attachment C to Part 1 provides:

> 3.4.1 Interference immunity performance for ILS localizer receiving systems.
>
> 3.1.4.1 After 1 January 1998, the ILS localizer receiving system shall provide adequate immunity to

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[3/] Copies of portions of Annex 10 referred to herein are appended hereto as Exhibit C.

> interference from two signal, third-order intermodulation products caused by VHF FM broadcast signals having [specified] levels . . . .
>
> 3.1.4.2 After 1 January 1998, the ILS localizer receiving system shall not be desensitized in the presence of VHF FM broadcast signals having [specified] levels . . . .
>
> 3.1.4.3 After 1 January 1995, all new installations of airborne ILS localizer receiving systems shall meet the provisions of 3.1.4.1 and 3.1.4.2 above.
>
> Recommendation - Airborne ILS localizer receiving systems meeting the immunity performance standards of 3.1.4.1 and 3.1.4.2 above should be placed into operation at the earliest possible date.

Attachment C to Part 1 of Annex 10 (Information and material for guidance in the application of the standards and recommended Practices in Annex 10) contains, in 2.2 (ILS airborne receiving equipment) information and materials relevant to performance and characteristics of receivers on airplanes (see especially 2.2.10.1 (Immunity performance of ILS receiving systems to interference from VHF FM broadcast signals)). Similarly, 3.11.6 (Airborne equipment characteristics) of Part 1 of Annex 10 spells out characteristics of required performance of airborne receivers.

10. Where given discretion to impose interference rejecting performance standards on receivers (as distinguished from the mandate contained in Section 303 quoted above), the Commission has indicated that the standard governing imposition of standards vel non is the public interest. See Memorandum Opinion and Order in MM Docket No. 86-144, 5 F.C.C. Rcd 3715, 3718 (1990) (no showing made that interference requiring

shielding of FM receivers would result from new 36 mV/m IF separation between FM broadcast stations). Here the mandate of the statute embodies the public interest: Section 303 of the Act in effect provides that the Commission shall make regulations necessary to carry out the provisions of Annex 10 which, inter alia, require that the United States endeavor to implement the third-level intermodulation interference immunity standards for airborne receivers at the earliest possible date.

11. In its Notice of Proposed Rulemaking in MM Docket 85-108, 50 FR 19392 (May 8, 1986), at para. 33 on p. 19396, the Commission proposed the use of inexpensive filters on airborne radio installations to eliminate interference from broadcast stations. This convinces Beckham that, as Petitioner asserts, simple, inexpensive methods along lines proposed by the Petitioner are indeed available, and should be implemented by the Commission.

WHEREFORE, it is respectfully requested that the Commission, pursuant to the mandate of Section 303 of the Communications Act of 1934, take appropriate action to implement

airborne receiver interference rejection standards or guidelines, at the earliest possible date.

Respectfully submitted,

By: _____
Frank J. Martin, Jr.
Elizabeth C. Buckingham

SUTHERLAND, ASBILL & BRENNAN
1275 Pennsylvania Avenue, N.W.
Washington, D.C. 20004-2404
(202) 383-0100

Attorneys for Robert C. Beckham

March 11, 1991

U.S. Department of Transportation
Federal Aviation Administration

Southern Region

P. O. Box 20636
Atlanta, Georgia 30320

September 13, 1990

RADIO STATION WGAC
ATTN: Robert C. Beckham
124 North Belair Road
Evans, Georgia 30809

Dear Mr. Beckham:

This is in response to your FAA Form 7460-1, Notice of Proposed Construction or Alteration, dated January 23, 1990, proposing a new FM radio station near Leah, Georgia. Specific information is as follows:

AERONAUTICAL STUDY NO. 90-ASO-205-OE

SPONSOR	:	Radio Station WGAC
STRUCTURE	:	FM Antenna Tower (107.7mHz/50kW)
LOCATION	:	Leah, Georgia
LATITUDE/LONGITUDE	:	33o38'35"N./82o19'50"W.
HEIGHTS	:	328 feet AGL, 778 feet AMSL.

The preliminary review revealed a potential Electromagnetic Interference (EMI) problem with respect to intermodulation interference with the Augusta, Georgia, Bush Field Runway 17 localizer facility (I-MZX).

A copy of the Spectrum Engineering Section evaluation report is enclosed for your information. Unless this potential EMI problem can be resolved the above tower location would have substantial adverse effect upon aeronautical operations and would receive a Determination of Hazard to Air Navigation.

Should you require additional information please let me know.

Sincerely,

RONALD T. NIKLASSON
Airspace Specialist
System Management Branch
Air Traffic Division

ENCLOSURE
cc:ASO-424/ASO-483/FCC/ATP-210/Glen Clark

REVIEW OF AIRSPACE STUDY
90-ASO-205-OE
LEAH, GEORGIA
ANTENNA TOWER, FREQ. 107.7 MHZ

An analysis of the airspace study 90-ASO-205-OE (coordinates listed as 33-38-35 latitude and 82-19-38 longitude) revealed intermodulation interference with the Augusta, Georgia, MZX/localizer. The application was analyzed using the generic FM antenna type with an ERP of 50 kilowatts and an overall height above mean sea (MSL) level of 778'.

INTERMODULATION INTERFERENCE:

The Spectrum Engineering Section, ASO-483, objects to the proposal based on the analysis which indicates that aircraft operating in the frequency protected service volume (FPSV) making an instrument landing system (ILS) approach to Runway 17 at Augusta/Bush Field International Airport will be subject to hazardous three signal/third order intermodulation interference of the type f1 + f2 - f3 resulting in navigation receiver overload. This interference would be caused by the proposed frequency in combination with existing stations as follows:

[PROP(107.7MHz) + WFXA(103.1MHz) - WGUS(102.3MHz)= MZX(108.5MHz)]

Intermodulation interference occurs whenever two or more signals or their integer multiples combine in such a manner that the product is the frequency to which the receiver is tuned. These signals combine in the nonlinear external devices to produce sum difference frequencies through heterodyne action.

Based on our analysis of the subject airspace study we cannot concur with the proponent's request.

Freddie T. Massey

Freddie T. Massey, Supervisor
Spectrum Engineering Section. ASO-483

AUG 29 1990
8/22/90
Date

U.S. Department of Transportation
Federal Aviation Administration

Southern Region

P. O. Box 20636
Atlanta, Georgia 30320

TERMINATION OF NOTICE OF PROPOSED CONSTRUCTION OR ALTERATION

CITY	STATE	LATITUDE/LONGITUDE	MSL	AGL	AMSL
LEAH	GA	33-38-35.00 082-19-50.00	450	328	778

RADIO STATION WGAC
MR. ROBERT C. BECKHAM
124 NORTH BELAIR ROAD
EVANS, GA 30809

AERONAUTICAL STUDY
No: 90-ASO-0205-OE

Type Structure: ANTENNA TOWER 107.7MHZ/50KW -EMI TROUBLE

An acknowledgement of notice of proposed construction or alteration was forwarded on 00/00/00 stating:

> The proposed construction would exceed FAA obstruction standards and further aeronautical study is necessary to determine whether it would be a hazard to air navigation. Pending completion of any further study, it is presumed the construction would be a hazard to air navigation.
>
> Further study may be requested by the sponsor within 30 days of this acknowledgement.
>
> If the proposed structure were reduced in height to not exceed 0 feet above ground level (450 feet above sea level), it would not exceed Part 77 obstruction standards.

No request for further study was received within the 30 day time period; therefore, this study is terminated.

If you desire to reactivate the construction proposal, please use the enclosed FAA Form 7460-1.

If the structure is subject to the licensing authority of the FCC, a copy of this acknowledgement will be sent to that Agency.

SIGNED [signature] Specialist, Systems Management Branch
Ronald T. Niklasson (404) 763-7646.
ISSUED IN: East Point, Georgia 01/18/91